

CLAIMS

What is claimed is:

1. A composition comprising an alkoxyated phosphite having the formula of $(\text{HO}[\{\text{CH}(\text{R})\}_m\text{O}]_n)_3\text{P}$ wherein each R is independently hydrogen, an alkyl group, or combinations of two or more thereof; m is a number from 2 to about 20; and n is a number from about 1 to about 20.
2. A composition according to claim 1 wherein said composition is said alkoxyated phosphite.
3. A composition according to claim 2 wherein said composition is tri-(ethyleneglycol) phosphite, tri(propylene glycol) phosphite; tri(isopropylene glycol) phosphite; tri(1,4-butylene glycol) phosphite; tri (-isobutylene glycol) phosphite; tri(pentylene glycol) phosphite; tri(hexylene glycol) phosphite; tri(octylene glycol) phosphite, tri(nonylene glycol) phosphite, tri (diethylene glycol) phosphite, tri(triethylene glycol) phosphite, tri(polyethylene glycol)phosphite, tri(polypropylene glycol) phosphite, tri(polybutylene glycol) phosphite; or combinations of two or more thereof.
4. A composition according to claim 3 wherein said composition is tri-(ethylene glycol) phosphite.
5. A composition according to claim 1 wherein said composition further comprising titanium or a titanium compound.
6. A composition according to claim 5 wherein said composition further comprising a complexing agent, which is a hydroxycarboxylic acid, an alkanolamine, an aminocarboxylic acid, or combinations of two or more thereof.
7. A composition according to claim 6 wherein said composition further comprising a hypophosphorous acid, its salt, or both.
8. A composition according to claim 6 wherein said titanium or a titanium compound is tetra isopropyl titanate, tetra n-butyl titanate, or combinations thereof.

9. A composition according to claim 7 wherein said titanium or a titanium compound is tetra isopropyl titanate, tetra n-butyl titanate, or combinations thereof.

10. A composition according to claim 6 wherein said titanium or a titanium compound is a titanium chelate comprising or produced from a tetraalkyl titanate and said complexing agent.

11. A composition according to claim 10 wherein said titanium or a titanium compound is tetra isopropyl titanate, tetra n-butyl titanate, or combinations thereof.

12. A composition according to claim 11 wherein said composition further sodium hypophosphite.

13. A composition according to claim 11 wherein said titanium or a titanium compound is TYZOR[®] LA (titanium bis-ammonium lactate).

14. A composition according to claim 13 wherein said composition is tri-(ethylene glycol) phosphite.

15. A composition according to claim 3 wherein said composition further comprising titanium or a titanium compound.

16. A composition according to claim 15 wherein said composition further comprising a complexing agent, which is a hydroxycarboxylic acid, an alkanolamine, an aminocarboxylic acid, or combinations of two or more thereof.

17. A composition according to claim 16 wherein said composition further comprising a hypophosphorous acid, its salt, or both.

18. A composition according to claim 17 wherein said titanium or a titanium compound is tetra isopropyl titanate, tetra n-butyl titanate, or combinations thereof.

19. A composition according to claim 18 wherein said titanium or a titanium compound is a titanium chelate comprising or produced from a tetraalkyl titanate and said complexing agent.

20. A composition according to claim 19 wherein said hypophosphorous acid, its salt, or both is sodium hypophosphite.

21. A composition according to claim 20 wherein said titanium or a titanium compound is TYZOR[®] LA (titanium bis-ammonium lactate).

22. A composition according to claim 21 wherein said composition is tri-(ethylene glycol) phosphite.

5 23. A process comprising contacting, optionally in the presence of a catalyst, a trialkylphosphite with an alkylene glycol or polyalkylene glycol under condition sufficient to produce an alkoxylated phosphite having the formula of $(\text{HO}[\{\text{CH}(\text{R})\}_m\text{O}]_n)_3\text{P}$ wherein each R is independently hydrogen, an alkyl group, or combinations of two or more thereof; m is a number from 2 to about 20; and n
10 is a number from 1 to about 20.

24. A process according to claim 23 wherein said trialkylphosphites is trimethyl phosphite, triethyl phosphite, tripropyl phosphite, tributyl phosphite, triisobutyl phosphite, triamyl phosphite, trihexyl phosphite, trinonyl phosphite, or combinations of two or more thereof.

15 25. A process according to claim 23 wherein said alkylene glycol or polyalkylene glycol is ethylene glycol, propylene glycol, isopropylene glycol, 1,4-butylene glycol, 1,5-pentylene glycol, 1,6-hexylene glycol, 1,8-octylene glycol, 1,9-nonylene glycol, diethylene glycol, triethylene glycol, polyethylene glycol, polypropylene glycol, polybutylene glycol, or combinations of two or more
20 thereof.

26. A process according to claim 25 wherein said trialkylphosphites is trimethyl phosphite, triethyl phosphite, tripropyl phosphite, tributyl phosphite, triisobutyl phosphite, triamyl phosphite, trihexyl phosphite, trinonyl phosphite, or combinations of two or more thereof.

25 27. A process according to claim 26 wherein said process is carried out in the presence of a catalyst, which is TYZOR[®] TPT (tetra isopropyl titanate).

28. A process comprising contacting, in the presence of a composition comprising an alkoxylated phosphite, a carbonyl compound with an alcohol wherein said alkoxylated phosphite has the formula of $(\text{HO}[\{\text{CH}(\text{R})\}_m\text{O}]_n)_3\text{P}$
30 wherein each R is independently hydrogen, an alkyl group, or combinations of two

or more thereof; m is a number from 2 to about 20; and n is a number from 1 to about 20.

29. A process according to claim 28 wherein said composition is tri-(ethyleneglycol) phosphite, tri(propylene glycol) phosphite; tri(isopropylene glycol) phosphite; tri(1,4-butylene glycol) phosphite; tri (-isobutylene glycol) phosphite; tri(pentylene glycol) phosphite; tri(hexylene glycol) phosphite; tri(octylene glycol) phosphite, tri(nonylene glycol) phosphite, tri (diethylene glycol) phosphite, tri(triethylene glycol) phosphite, tri(polyethylene glycol)phosphite, tri(polypropylene glycol) phosphite, tri(polybutylene glycol) phosphite; or combinations of two or more thereof.

30. A process according to claim 29 wherein said composition is tri-(ethylene glycol) phosphite.

31. A process according to claim 28 wherein said composition further comprising titanium or a titanium compound.

32. A process according to claim 31 wherein said composition further comprising a complexing agent, which is a hydroxycarboxylic acid, an alkanolamine, an aminocarboxylic acid, or combinations of two or more thereof.

33. A process according to claim 32 wherein said composition further comprising a hypophosphorous acid, its salt, or both.

34. A process according to claim 32 wherein said titanium or a titanium compound is tetra isopropyl titanate, tetra n-butyl titanate, or combinations thereof.

35. A process according to claim 33 wherein said titanium or a titanium compound is tetra isopropyl titanate, tetra n-butyl titanate, or combinations thereof.

36. A process according to claim 32 wherein said titanium or a titanium compound is a titanium chelate comprising or produced from a tetraalkyl titanate and said complexing agent.

37. A process according to claim 36 wherein said titanium or a titanium compound is tetra isopropyl titanate, tetra n-butyl titanate, or combinations thereof.

38. A process according to claim 37 wherein said composition further sodium hypophosphite.

39. A process according to claim 37 wherein said titanium or a titanium compound is TYZOR[®] LA (titanium bis-ammonium lactate).

5 40. A process according to claim 39 wherein said composition is tri-(ethylene glycol) phosphite.